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## MICRO-LEPIDOPTERA.

BY V. T. CHAMBERS, COVINGTON, KY.

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### LAVERNA.

This genus may be distinguished by the tufts of raised scales on the anterior wings. The antennae are more than half as long as the wings, simple, inserted just above the eyes. Head and face smooth, with appressed scales. Face rather broad. Tongue very short. No maxillary palpi; labial palpi curving around the sides of the head upwards, the tips approaching each other on the vertex, the third joint shorter than the second, which is laterally compressed and slightly clavate.

For a fuller diagnosis, see Dr. Clemens' *Proc. Acad. Nat. Sci. Phila.*, 1860, p. 170.

*L. cephalonthiella*. *N. sp.*

Tongue and face white; palpi grayish-white beneath, gray above; antennae gray, annulate with dark brown, tipped with white, and with four or five very distinct white annulations near the tip. Thorax and wings dark bluish-gray, flecked with numerous white scales and specks. The wings are irregularly spotted with velvety black; have an ochreous patch at the base of the inner margin, not very distinct, and a larger one upon the disc, and an irregular indistinctly outlined fasciae nearly crossing the wing, just before the third costal streak, and dusted with golden in the middle, and with white upon the costa. The ochreous patches are not distinct in outline, and seem to be composed of confluent streaks. Two rather large tufts of elevated scales within the inner margin, the first velvety black, the second ochreous, margined with velvety black, and larger than the first. The first tuft is before, and the second behind the middle. Three velvety black, slightly oblique costal streaks, the first small, placed before the middle; the second larger, behind the middle; and the third and largest just before the ciliae. In some lights,

the tufts glow with crimson and purple hues, and the ochreous patches assume the form of indefinite wide bands. There is an oblique costal streak of rather dense white dusting before the apex, and an opposite dorsal one. Three dark brown hinder marginal lines, one at the base of the ciliae, the second before the apex, and the third at the apex, of the ciliae. Dorsal ciliae dark slate-colour, *with eight or ten distinct white specks near the base*. Posterior wings and ciliae slate-colour. Abdomen slate-colour, with crimson and purplish reflections. But the colours of the entire insect vary somewhat with the direction of the light. *Alar ex.* about  $\frac{1}{3}$  inch. Common. Kentucky.

The larva mines the leaves of the Button Bush (*Cephalanthus occidentalis*). I found them early in October, and a few days afterwards, they became pupae, and within a week thereafter, produced the imago. It pupates on the ground, and the imago most probably hybernates.

The mine and larva resemble those of the genus *Antispila*, but the larva is reddish.

This is the only *Laverna* that I have found, and is a very handsome insect.

ASPIDISCA, *Clemens*.

Head smooth, with appressed scales. Tongue naked, short. Labial palpi short, much separated. Antennae about one half as long as the wings. Size, very small.

(This brief, generic diagnosis is condensed from Dr. Clemens' account published in the *Proc. Acad. Nat. Sci. Phila.*, 1860, v. II., *corrected at p. 209*. Dr. Clemens errs, however, in the statement that there are no maxillary palpi. They are not visible without dissection, but upon dissection, minute *one-jointed* palpi are perceptible).

The larvae are cylindrical, depressed; head smaller than the first segment. No true legs nor prolegs, but in their places, and also on some of the other segments, are what appear to be discs, which act as suckers. It is doubtful, however, if they do so act, as they appear on the dorsal as well as ventral surfaces. They are miners through their whole larval existence, and when ready to pupate, they cut out a minute case, and, sewing together the edges, let themselves down by a thread, and, notwithstanding their apparent want of means of locomotion, they manage to transport themselves and their cases frequently through long grass, or over seemingly impracticable routes, for many rods, before spinning the silken "byssus," by which the case is attached to a tree, or fence, or blade of grass, for the pupal repose.

1. *A. splendoriferella*, Clem. *Loc. cit.*

*Lyonetia Saccatella*, Packard, Guide, p. 355, and plate 8, figs. 18, a and b.

Dr. Clemens found this "perfect little gem," as Dr. Packard truly calls it, mining the leaves of Haw trees (*Crataegus*) in August, and cutting out its cases, preparatory to pupating, *in the latter part of August and in September*. He also found a similar larva mining the leaves of the Wild Cherry tree (*Prunus serotina*) at the same time, but was uncertain as to the species. I have bred it from the mines, and find it to be this species. I have also bred it from the leaves of the Sweet Scented Crab (*Pyrus coronaria*), and from those of the Apple. At Linden Grove Cemetery, at this place, it occurs by the million. In that Cemetery (so called because there are only two or three Linden saplings in it, I suppose), there are a great many Wild Cherry trees, and in August, scarcely a leaf can be seen without a mine, and, usually, from two to five or six in each; and in September, after they begin to descend, to pass under one of the trees is like sticking one's head into a cobweb. A little later, the trees and fences are plastered over with their little cases.

Dr. Packard's account of his *Lyonetia saccatella* is brief, as it must of necessity be, in such a work as the "Guide," but I think there can be no doubt that it is identical with this species, which was first described by Dr. Clemens in the "*Proceedings*," *loc. cit.* I am led to this conclusion by the following facts:—

The species of *Lyonetia* are not case bearers, but leave their mines to pupate on a *nidus* on the ground. The antennae in *Lyonetia* are about as long as the wings, while Dr. Packard's figure represents them, as they are in this species, about one half as long as the wings. The description of the species by Dr. Packard is so accurate for this species (considering its brevity), that it is not probable that two species belonging to different genera, should resemble each other so closely; and he found, at the same time, upon the same food-plant, and with the extraordinary "mimicry" carried so far, that one of the species, belonging to a genus in which there are no other case bearers, assumes the case bearing habit in imitation of the other. Such a case of mimicry would delight Messrs. Wallace & Bates beyond measure.

Dr. Packard evidently supposed that his species was a case bearer throughout its larval existence. But the fact which he states, that the case is made of the cuticle of leaves, shews that it has once been a miner. He found it on the leaves of the Apple, in the latter part of August and in

September—just the period when *A. splendoriferella* is cutting out its cases, crawling over the leaves, and fixing its byssus to the limbs and trunks, as Dr. Packard's species did.

On the other hand, some of the minuter markings, towards the apex of the wing, are not mentioned by Dr. Packard, nor shown in the figure. The form of the case in the figure is by no means accurate, though that of the larva is. And the *alar ex.* is stated to be .20 inch, whilst I have never found it to exceed two lines.

2. *A. lucifluella*, Clem. *Op. cit.*, p. 209.

I have found the larvae mining the leaves of Hickory trees, but have not yet succeeded in raising them from the mines. According to Dr. Clemens' description, it is a little larger than *A. splendoriferella*, and resembles more closely the next described species. Kentucky and Pennsylvania. Not common.

3. *A. Ella*. *N. sp.*

Head silvery white, tinged with yellowish. Antennae pale fuscous above, silvery beneath; thorax and about the basal one-third of the wings, silvery gray, remainder of the wings golden brown or dark brown, according to the light, sometimes appearing reddish golden. A rather large costal white streak in the dark part of the wing, just before the middle, with an indistinct reddish or yellowish spot before it, within the costal margin, and a triangular white dorsal streak nearly opposite, but a little before, and a costal faint yellowish indistinct spot behind it. A triangular, velvety, black, apical spot with its base towards the ciliae, a small silvery spot at its apex, and a narrow silvery line on each of its sides; ciliae silvery. Under surface and legs silvery white. *Alar ex.* about  $\frac{1}{4}$  inch. (Smaller than *A. splendoriferella*). Larva and food plant unknown. A single specimen found in its case attached to the bark of an Oak tree.

Named in honor of a lady friend, who, like our "micro," is both "*petite*" and pretty.

Dr. Clemens mentions the larvae of two other species, one of which mines the leaves of the Ironwood (*Ostrya Virginica*), and the other mines different species of Willows (*Salix*). I have met with both mines, but, like Dr. Clemens, I have never seen the imagines, unless *A. Ella* should prove to be one of them.

These are the only known species of the genus.

## NOTES ON LEPIDOPTEROUS LARVÆ.

BY W. SAUNDERS, LONDON, ONT.

In November, 1867, I received from my esteemed friend, the late B. Billings, of Ottawa, several specimens of the larva of that very rare arctian, *A. parthenos*, which he had reared from eggs laid by a captured female in a box. They were apparently about two-thirds grown, and ready to hibernate for the winter; a common practice with many species belonging to this interesting family of moths.

The length of this larva was  $1\frac{1}{4}$  inches, body cylindrical.

Head medium sized, bilobed, black and shining, with a few brownish hairs.

Body above, black, with transverse rows of shining tubercles, which were rather large, and of a dull brownish-white colour, excepting a few on the anterior segments, which were black; and from each of them was emitted a tuft of brown hairs. The hairs on the anterior segments and around the base of the body, were rather short; the others long and silky, and of a slightly paler brown colour, recurved backwards. Stigmata elongated, and of a yellowish orange colour.

The under surface was black, with a slight brownish tinge, 5th, 6th, 11th and 12th segments, each with a transverse row of black tubercles in continuation of those above, each tubercle emitting several short dark brown hairs. Feet black, ringed with dull whitish-brown, prolegs black without, tipped with greenish-brown; within, greenish-brown.

I buried these larvæ a short distance underground, stowed away carefully in a box with some loose pieces of chip, with the hope that they would survive the winter. In this, however, I was disappointed, for on disinterring the box very early in Spring, I found them all dead.

*STEGANIA PUSTULARIA* Guenee.—The larva of this little delicate-looking geometric moth, feeds on the Maple. It is common in our neighbourhood, and may be readily got, in season, by striking the branches of the trees a sharp blow, when it drops at once part way to the ground, remaining suspended by a silken thread, by means of which, when danger passes, it can regain its position on the tree. It is found full grown about the middle of June, enters the chrysalis state within a few days afterwards, and produces the moth early in July.

When full grown, the larva measures about five-eighths of an inch in length, body cylindrical.

Head medium sized, rather flat in front, slightly bilobed, and of a pale green colour, with a few very fine hairs, invisible without a magnifying lens, scattered over its surface; mandibles tipped with black.

Body above bluish-green, with thickly set longitudinal stripes of whitish and yellowish. A double whitish dorsal line, with bordering lines of yellowish-white, neither of which are unbroken, but are formed of a succession of short lines and dots. Below these, on each side, are two or three imperfect white lines, made up of short streaks, and much fainter than those bordering the dorsal line; spaces between the segments yellowish. The skin all over the body is much wrinkled and folded.

The under surface is green, with a tinge of yellowish between the segments; feet yellowish-green, prolegs green, faintly tipped with brown.

The moth is of a pure white colour, with three or four reddish-brown spots on the costal margin of each of the fore-wings, and with a faint curved line of the same, crossing them a little beyond the middle; it expands 1 inch. This species was kindly determined for me by Dr. A. S. Packard, of Salem, Mass.

*METROCAMPA PERLATA* Guenee.—This pretty white geometer, which is larger than the last species referred to, I have bred from a larva which was found feeding on willow, and which entered the chrysalis state before I had an opportunity of describing it.



FIG. 39.

The larva is very handsome, while the moth is of a very plain grey colour.

*ACRONYCTA OBLINITA* Sm. & Abbot.—This insect, which is admirably represented in all its stages in fig. 39, is well described by Mr. C. V. Riley, in his "Third Annual Report on the Noxious Insects of Illinois." In addition to the food plants there given, I have found the larva quite common on the cultivated Strawberry, and also on the Wild Raspberry. My specimens were taken early in September, and produced the imago about the middle of the following June.

EUPHANESSA (NUDARIA) MENDICA *Walk.*—A female of this species deposited eggs on the sides of a box, in which it was confined, on the 2nd and 3rd of July. They were of a bright red colour, and the young larvæ were hatched from them on the 8th of the same month. They were extremely active, about one-tenth of an inch long, with cylindrical bodies, and true geometers in their larval characteristics and mode of progression. The following description was taken at this stage in their history :—

Head large, bilobed, dark brown. Body above dull brownish-green, with a slight pinkish tinge, and with many short black and brown hairs. Under surface similar to the upper; feet and prolegs—of which latter there were two pairs only—greenish and semi-transparent.

I used my utmost endeavours to procure food for these larvæ, and introduced into the box in which they were confined, leaves belonging to many different families of plants, but failed to find anything they would eat. In the course of two or three days, they all died of starvation.

## INSECTS OF THE NORTHERN PARTS OF BRITISH AMERICA.

COMPILED BY THE EDITOR.

*From Kirby's Fauna Boreali-Americana: Insecta.*

(Continued from page 217.)

FAMILY ELATERIDÆ.

[145.] 194. CAMPYLUS DENTICORNIS, *Kirby.*—Length of body 6 lines. Taken in Canada by Dr. Bigsby.

This is the American representative of *C. mesomelas*, from which it is sufficiently distinguished by its toothed antennae and longer prothorax. Body linear, black, hairy with pale decumbent hairs. Head punctured; antennae longer than the prothorax, filiform, with all the joints, except the scape, pedicel, and terminal one, terminating at their internal extremity in a prominent tooth, less conspicuous in the two lower ones; upper-lip, and nose which is reflexed and overhangs the mouth, yellow: prothorax channelled, punctured, quadrangular, with the anterior angles rounded, and the posterior diverging and terminating in a sharp tooth or prominence; sides rather wavy; limb yellow: scutellum subcordate: elytra minutely and thickly punctured, slightly furrowed, furrows thickly punctured; marked with a narrow yellow stripe which does not reach the apex; there is also a short yellow streak on the shoulders: base of the tibiae, claw-joint of the



tarsi, and claws, yellow. ["Lake Superior, Maine and Pennsylvania" (Le Conte). We have specimens taken in the neighbourhood of Ottawa, Ont.]

[146.] 195. PEDETES BRIGHTWELLI, Kirby.—Length of body 6 lines. Taken in Nova Scotia by Capt. Hall.

Body elongate, more slender than that of the type, testaceous; hairy, with decumbent pale hairs; thickly punctured. Head dusky-red; antennae longer than the prothorax, slenderer than usual in the tribe, scarcely serrated, with the four last joints rather slenderer than the rest; eyes large and hemispherical; nose a good deal reflexed: prothorax convex, channelled, dusky-red, darker in the disk: elytra pale testaceous; furrowed, furrows deeply punctured; interstices minutely punctured with scattered punctures: legs paler than the rest of the body, and nearly yellow. [Included now in the genus *Athous* Esch. Le Conte, in his "Revision of the Elateridæ of the United States," (Amer. Phil. Trans. vol. x., p. 425), states that this species occurs in the "Middle and Southern States, not rare. The specimen described by Kirby seems to have been a pale coloured variety of this species, which varies much in colour. In the male the thorax is constricted before the posterior angles, which are slightly divergent; in the female, the sides are straight and the angles do not diverge; the dorsal channel is never deep, and is frequently wanting."

SUBGENUS ASAPHES Kirby.

Body wider. Nose not overhanging the mouth. Rhinarium attenuated in the middle. Prothorax short, posterior angles carinated.

I am doubtful whether this should not be considered as forming a distinct genus. The general form is very different. But as the tarsi have suckers on the second and third joints, till more species are discovered, I have given it as only a subgenus of *Pedetes*.

[Dr. Le Conte (Am. Phil. Trans. x. 449) states that "although but one species of this genus is described by Kirby and another by Germar, I find that several of our Elaters possess characters which require them to be associated with his type. They seem to form a natural group approaching most nearly to Corymbites, and indeed differing from that genus only in the structure of the tarsi. The second and third joints of the tarsi are dilated beneath into a short spongy lobe: the first joint is as long as the second and third together, and usually spongy at the tip: the fourth joint is small and narrow, received upon the third, and is sometimes also spongy beneath: the fifth joint is elongate with simple claws."]

196. PEDETES (ASAPHES) RUFICORNIS Kirby.—Length of body  $7\frac{1}{4}$  lines. Taken in Nova Scotia by Capt. Hall.



Body black, rather glossy, minutely punctured, downy with pale down. Antennæ, mouth, and palpi rufous or dusky-rufous; labrum and mandibles piceous; nose rounded, not reflexed, not overshadowing the mouth; antennæ serrated on the inner side in the middle, last joint acuminate: prothorax short, widest behind, very obsoletely channelled, sides submarginated; posterior angles dentiform, strongly carinated: elytra piceous, or rufo-piceous, very slightly furrowed with oblong punctures in the furrows, interstices minutely punctured: margin of the abdomen and of the penultimate segment, rufous. [Previously described as *Elater memnonius* Herbst. Quite common in Canada; taken also in Maine, Ohio, Pennsylvania, Alabama (Le Conte).]

[148.] 197. *PERIMECUS FULVIPES* Herbst.—Length of body 7 lines. Taken in Canada by Dr. Bigsby.

Body black, punctured, glossy; gloss and colour obscured by numerous decumbent pale hairs. Antennæ pale chestnut, with the third joint double the length of the second: posterior angles of the prothorax carinated: elytra with nine rows of large and deep punctures, interstices minutely punctured: legs pale chestnut.

The only difference that I can discover between the American and European specimens, is in the length of the third joint of the antennæ, which in the latter is scarcely longer than the second; and this may probably be a sexual distinction. [Belongs to the genus *Melanotus* Esch., and is synonymous with *M. (Cratonychus) castanipes* Payk.]

198. *PERIMECUS COMMUNIS* Gyll.—Length of body  $6\frac{1}{3}$  lines. Several specimens taken at Cumberland-house, Lat.  $54^{\circ}$ .

Very similar to the preceding species, but much smaller. Body chestnut-coloured, darker or lighter in different specimens, punctured, glossy, hairy: third joint of the antennæ twice the length of the second: prothorax thickly punctured, obsoletely channelled, chiefly behind: elytra, antennæ, and legs rather paler than the rest of the body, the former sculptured as in the last species. [Taken in Canada. "Abundant as far as Nebraska" (Le Conte). Belongs to the genus *Melanotus*.]

[149.] 199. *PERIMECUS SIMILIS* Kirby.—Length of body  $6\frac{1}{4}$  lines. Taken in Lat.  $54^{\circ}$ .

I should have given this as merely a variety of the last; but besides its blacker body, the punctures of the prothorax are not nearly so numerous, and there is no appearance of its being channelled: the breast is chestnut. [Belongs to the genus *Melanotus*.]

200. *CTENICERUS KENDALLI* Kirby.—Plate ii., fig. 7. Length of body 7 lines. A single specimen taken in Lat.  $65^{\circ}$ .

Body black, thickly punctured; gloss obscured by inconspicuous hairs. Head with two impressions between the eyes; nose subemarginate; antennæ shorter than the prothorax, serrated: prothorax longer than wide, channelled, posterior angles diverging, very acute, carinated: scutellum suboval, covered with white hairs: elytra rather wider than the prothorax, testaceous with a black discoidal blotch at the tip; slightly furrowed with punctures in the furrows: interstices punctured: legs piceous.

This species, which is a female, is related to *Ct. cupreus*, but is much wider in proportion to its length. [Belongs to the genus *Corymbites* Latr. "One specimen found on the north shore of Lake Superior. Mr. Randall found it in Maine" (Le Conte).]

[150.] 201. ELATER (APHOTISTUS) ÆRIPENNIS Kirby.—Length of body 6 lines. Several taken in Lat. 54°. Cumberland-house.

Body very black, without hairs, underneath very minutely punctured. Head thickly and confluent punctured; nose with two slight impressions: antennæ shorter than the prothorax, third joint longer than the fourth: prothorax very thickly punctured, obsoletely channelled, longer than wide, rather narrowest before, sides curving, posterior angles acute, diverging, carinated: scutellum heart-shaped: elytra bronzed, or green-bronzed; furrowed, furrows punctured; interstices convex, minutely punctured; tips acute: a discoidal rufous spot or band, and sometimes two, marks the underside of the abdomen: legs piceous.

This species is the American representative of *E. impressus*, from which it differs principally in being smaller, narrower in proportion, with the head and prothorax not at all bronzed, and the latter more thickly punctured and without any gloss. [Not uncommon in Canada; "very abundant at Lake Superior; found by Randall in Maine" (Le Conte). Belongs to the genus *Corymbites* Latr.]

#### FAMILY BUPRESTIDÆ.

[151.] 202. BUPRESTIS (ANOPLIS) RUSTICORUM Kirby.—Length of body 9¼ lines. A single specimen taken in Lat. 54°.

Body black-bronzed, punctured, glossy. Head with a levigated elevation in the centre between the eyes, channelled behind; marked with two yellow spots underneath on the cheeks, a triangular one adjoining the eyes on their inner side, and two dots of the same colour between them; prothorax grossly punctured with levigated spaces, the discoidal one longitudinal; above the scutellum is an impression; sides converging at the base of the prothorax; anterior angles with a yellow stripe: elytra slightly

furrowed with numerous very minute punctures in the furrows; rounded at the apex: interstices with scattered punctures; those of the second, third, fourth, fifth, eighth and ninth furrows elevated so as to form an obtuse ridge: the four last ventral segments of the abdomen have on each side a reddish-yellow spot, those on the last segment being the largest and most irregular; anus with two distinct lateral teeth.

This species is so similar to *B. rustica*, that at first I regarded it as merely a variety, that insect however is smaller; the head has a distinct longitudinal channel: the prothorax is less thickly punctured, and the sides, at the base, converge less but more suddenly: the elytra are truncated, or rather premorse, at the apex with a few minute denticles: the mandibles have a yellow spot, and there are none on the ventral segments of the abdomen, except the anal one: the anal teeth also are obsolete. [Belongs to the genus *Ancylochira* Esch. "Oregon and Washington Territories, abundant"(Le Conte).]

[152.] 203. BUPRESTIS (ANOPLIS) PAGANORUM Kirby.—Length of body  $7\frac{3}{4}$  lines. A single specimen taken at Cumberland-house, Lat.  $54^{\circ}$ .

Very like the species last described. Body of the same colour, head, anterior angles of the prothorax, and underside of the abdomen similarly spotted, except that in the former there are no frontal dots. The prothorax however is differently shaped, being somewhat constricted anteriorly, with the sides towards the base rounded, it is also channelled; the sculpture of the elytra is similar, but they are more attenuated and truncated at the end, like *B. A. rustica*, and armed with three minute denticles. [Probably belongs also to *Ancylochira*; unknown to Dr. Le Conte.]

204. BUPRESTIS (ANOPLIS) NUTALLI Kirby.—Length of body  $7\frac{1}{2}$ —8 lines. Several specimens taken in Lat.  $65^{\circ}$ . and on the Rocky Mountains.

This species appears to be related to *B. octoguttata*. Body black-bronzed, glossy, punctured; underneath with a few pale decumbent hairs. Head confluent punctured with several irregular connected levigated spaces; labial palpi, spot on the mandibles, labrum, lower margin of the eyes, and frontal spots, yellow: prothorax bisinuate both at the apex and base, grossly punctured with several levigated spaces; lateral margin, except the base, and part of the anterior, yellow; elytra slightly furrowed, furrows punctured: interstices alternately convex and plane; the sutural one is convex and forked at the base; the flat ones are most punctured, but the convex ones more grossly; in the disk of the elytra are three

equidistant irregular yellow spots arranged longitudinally, and nearer the base, on the second ridge, a line of confluent yellow dots; the apex of the elytra is truncated: [153] on each of the ventral segments of the abdomen the sides are marked with a triangular orange-coloured spot, those on the anal segment being larger and irregular: the coxæ also and underside of the thighs are partly of the same colour.

VARIETY B. Without the yellow line of confluent dots at the base of the elytra, and with the spots arranged longitudinally indistinct.

C. With all the ventral orange spots large and irregular.

D. Front with a large central spot. Base of the belly bluish.

E. Elytra with only yellow spots. Front as in D.

F. With only one distinct yellow spot.

The most certain distinction of this varying species is the alternately convex and plane interstice of the furrows of the elytra. [Belongs to *Ancylochira*. "Lake Superior, one female" (Le Conte).]

205. BUPRESTIS (ANOPLIS) LINEATA *Fabr.*—Length of body 9 lines. Taken in Nova Scotia by Capt. Hall.

Body above black-bronzed, underneath bronzed, punctured. Head below and mouth orange: mandibles black with a basilar orange spot; front obscurely banded and dotted with the same colour; vertex channelled: prothorax dilated posteriorly; anterior angles deep orange: elytra slightly furrowed: furrows scarcely punctured; interstices flat, grossly punctured; truncated at the apex and armed with three minute teeth, one nearly obsolete; on each elytrum are two obscure deep orange stripes, the outer one diverging towards the base so as to pass below the shoulders, the inner one subinterrupted, widest towards the base, and not reaching the apex: fore-breast anteriorly orange. [Taken in Canada, but not common. "Middle and Southern States, not rare. Varies very much in the fulvous markings of the elytra, which are normally two broad vittæ upon each; the extreme variation is where the outer vitta is broken into three spots, and the inner one into two; the two anterior spots are then connected by a transverse line forming a hamate spot. The tip of the abdomen in the male is truncate, with a little tooth on each side; in the female, it is broadly rounded, but the same teeth are seen. The under surface is dull bronze, with the head and anterior margin of the posternum fulvous" (Le Conte, *Am. Phil. Trans.* xi., p. 206). Belongs to *Ancylochira*.]

206. BUPRESTIS (ANOPLIS) FASCIATA *Fabr.*—Length of body 7—8

lines. Taken in Canada by Dr. Bigsby; B and C in Nova Scotia by Capt. Hall.

[154.] Body of a lovely brilliant green, punctured underneath with a few pale hairs. Head confluent punctured: antennæ bronzed; vertex channelled: prothorax transverse marked before the middle with two transverse impressions, and another just above the scutellum; grossly punctured: elytra furrowed; furrows thickly punctured; interstices convex with fewer punctures; apex truncated with the angles terminating in a short point; beyond the middle of the elytrum is a rather broad, especially next the suture, wavy orange band surrounded by a dusky blotch; beyond this and near the apex is another oblique abbreviated little band of the same colour.

VARIETY B. Smaller with the bands paler and narrower.

C. With only a single band narrowest next the suture: prothorax without the anterior impressions. [Quite common in many parts of Canada, in all its variations. We found it abundant at Credit, Ont., but quite rare at Cobourg and Port Hope. Le Conte (*loc. cit.*) states that it is "not rare, especially in the Northern portions of the Atlantic States; varies in colour from green to blue, and also in the size of the markings of the elytra. The tip of the abdomen of the ♀ is truncate; in the ♂ it is truncate and bisinuate: the anterior tibiæ are simple." Belongs to *Ancylochira*.]

#### BOOKS RECEIVED.

*First Annual Report on the Noxious Insects of the State of Illinois.* By W. Le Baron, M. D., State Entomologist. Springfield, Ill., 1871. We have been favoured by Mr. Le Baron—the successor of the much lamented Mr. Walsh—with a copy of his *first* Report as State Entomologist we trust that it is the precursor of a long series during years to come. After some introductory remarks, the author takes up for consideration Insects injurious to the Apple, Pear and Plum trees, the Grape-vine, the Currant, the Potato, the Rose, and the Pine. Among the first mentioned, he describes a new species, "The Lesser Apple Leaf-folder" (*Tortrix malivorena*), which appears to have been excessively destructive in the neighbourhood of Lacon, Ill.; and gives a full account of the beneficial labours of a Chalcis fly, parasitic upon the Apple Bark-louse. Another

new enemy to the horticulturist is figured and described—"the Callimorpha Pear Caterpillar" (*C. Lecontei* Boisd., var. *fulvicosta* Clemens.) The larva of *Acronycta superans* Guen., he records as affecting the leaves of Plum trees, and gives a full description of its larval and imago states.\* Valuable descriptions are also given of the "Four-striped Plant-bug" (*Capsus quadrivittatus* Say), affecting the Currant, and of the "White Pine Leaf-louse" (*Mytilaspis pinifoliae* Fitch).

*Notes on Chalcididae.* Parts iii. and iv. By Francis Walker, F.L.S. London, Janson, 1871. These pamphlets, for which we have to thank the author, contain numerous descriptions, illustrated by occasional woodcuts, of species of *Chalcididae* from all parts of the world.

*Le Naturaliste Canadien.* Edited by M. L'Abbe Provancher (Quebec), has now reached, like ourselves, the close of its *third* volume. We may congratulate each other upon having survived the most perilous period in the life of a scientific journal, and feel a well assured hope that we may both continue, in our respective ends of the country, to do what we can to promote the study and knowledge of the natural history of the Dominion. Though designed especially for our French-speaking compatriots, we trust that *Le Naturaliste* will acquire an extensive circulation also among the Anglo-Saxon portion of the community. Our readers will find in its pages much to interest them of an Entomological character, as well as other departments of Zoology and Botany.

*Les Petites Nouvelles Entomologiques* (A. M. E. Deyrolles fils, 19 Rue de la Monnaie, Paris, France), though sadly interrupted during the siege and subsequent troubles in Paris, was at once resumed upon the cessation of hostilities, and is now conducted with quite as much spirit as formerly. We gladly translate from its pages much that is of more than local interest, from time to time. (We can supply a few copies at \$1.25 per annum to our subscribers).

ERRATA.—On page 163, at the sixteenth line from the top, for "intercepted" read "interrupted;" on page 182, at the third line from the bottom, for "Cuniostoma" read "Cemiostoma;" on page 183, at the third line from the bottom, and on page 184, at the fourteenth line from the top, for "pupæ" read "proper."

\* Our specimens of this moth, to which Mr. Le Baron refers, were determined for us by Mr. Walker of the British Museum; we think that the determination may be relied on, although Guenee's description is so meagre.

## MISCELLANEOUS NOTES

PARASITE ON *PIERIS RAPÆ*.—The news of the appearance of an effective parasite on *P. rapæ* will, we doubt not, be hailed with delight by our Lower Canadian friends and the gardeners of the North-Eastern States. Mr. P. S. Sprague, of Boston, Mass., has kindly sent us several specimens, of both sexes, of this new arrival, respecting which he writes as follows:—"The *P. rapæ* chrysalis parasite, mentioned in my communication (CAN. ENT., vol. iii., page 158) proves, on examination by Dr. Packard, to be the introduced *Pteromalus puparum*. My son gathered about fifty of the

chrysalids, every one of which was infested, as many many as forty specimens coming from a single one. The female walks over the chrysalis feeling with her antennæ for a suitable place to insert her ovipositor, and when found, drills a hole, which takes upon an average one minute in time." [Figure 40 represents the larva and chrysalis of this imported pest.]

The following excellent communication by Mr. Sprague's son, who bids fair to become an eminent Entomologist, we copy from the *Rural New Yorker*:

"A NEW ENEMY TO THE CABBAGE WORM.—

Although I am a little boy, I think I can write something for the entomological column that will please the old folks. Almost everybody who raises cabbages has had a great many destroyed this year by a little green caterpillar, and I suppose they have seen a new, white butterfly, called the *Pieris rapæ*, flying around them.

This butterfly lays a little white egg on the leaves, which, in a few days, hatches out a little green caterpillar, which eats until it grows about an inch in length; then it goes and hunts up some sheltered place where it can go into a chrysalis. I was looking for some chrysalids for my father, when I saw a little fly walking all over them; by-and-by it made a little hole in the chrysalis to lay its eggs in. This fly is almost one-eighth of an inch long; it is of a golden colour. Some of the flies have yellow legs, and others have dark ones. They have four wings; the body is pointed at the end; there are about fifty of these flies in a chrysalis; the chrysalis looks as if it were all right, but if you break it open you will find it full of little grubs. This little fly kills so many of the chrysalids that in a few years the butterflies will not be so common, and cabbages will not be destroyed.—H. W. S., Boston, Mass."



FIG. 40.



## EXCHANGES, &amp;c.

LEPIDOPTERA, &c.—I have a collection of Birds' Eggs, Lepidoptera (including some from Florida) and Coleoptera, duplicates of which I should like to exchange, giving preference to the two first named.—JOSEPH E. CHASE, Lock Box 46, Holyoke, Mass.

An American Entomologist, who has made a speciality of Lepidoptera, would like to correspond with collectors in any part of the world.—Address H. K. Morrison, care of E. K. Butler, 68, Pearl-street, Boston, Mass.

## ADVERTISEMENTS.

COLLECTING TOUR IN LABRADOR.—The undersigned intends to leave next spring, *in the first vessel from Quebec*, on a collecting tour in LABRADOR. Insects of all orders will be collected; and as many species will be, no doubt, unique, undetermined or new to science, those who are anxious to obtain specimens of LEPIDOPTERA and COLEOPTERA will please communicate with me as early as possible. Terms in accordance with number and specialties.—WM. COUPER, Montreal.

CORK AND PINS.—We have a good supply of sheet cork of the ordinary thickness, price 16 cents (gold) per square foot; and a full supply of Klaeger's pins, Nos. 1, 2, 5 and 6, price 50 cents (gold) per packet of 500.

CANADIAN ENTOMOLOGIST, Vols. 1 and 2.—We have a few copies left of these volumes—No. 1 of vol. 1 being deficient, however, and out of print. Price \$1.25 (gold) each.

LIST OF CANADIAN COLEOPTERA.—Price 15 cents each, embracing 55 families, 432 genera, and 1231 species. (For labelling cabinets).

PRINTED NUMBERS, in sheets, 1 to 2000, for labelling cabinets. Price 10 cents each set.

These prices are exclusive of cost of transportation, and orders will please state whether the package is to be sent by mail or express.

## AGENTS FOR THE ENTOMOLOGIST.

CANADA.—E. B. Reed, London, Ont.; W. Couper, Naturalist, Montreal, P.Q.; G. J. Bowles, Quebec, P. Q.; J. Johnston, Canadian Institute, Toronto, Ont.

UNITED STATES.—The American Naturalist's Book Agency, Salem, Mass.; J. Y. Green, Newport, Vt.; W. V. Andrews, Room 17, No. 137 Broadway, New York.

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